

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of

Review of Section 251 Unbundling)	
Obligations of Incumbent Local Exchange)	CC Docket No. 01-338
Carriers)	
)	
Implementation of the Local Competition)	CC Docket No. 96-98
Provisions of the Telecommunications Act of)	
1996)	
)	
Deployment of Wireline Services Offering)	CC Docket No. 98-147
Advanced Telecommunications Capability)	
)	

**COMMENTS OF
MPOWER COMMUNICATIONS CORP.
ON TRIENNIAL UNE NPRM**

MPOWER COMMUNICATIONS CORP.

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Summary

As the old copper network is gradually augmented and replaced by fiber, the new availability of broadband packet technology is producing a convergence of systems. Voice, as well as data, has already begun to be transmitted in packets over fiber. As a result of this convergence, it is increasingly difficult to predict what combinations of technology and facilities will be necessary to reach customers with competitive choices. This is particularly true for loops.

It is also crucial to understand that it generally is not and cannot be economical to replicate the “last mile” to the customer premises. A rational network plan, therefore, requires that capacity be shared. Further, other media, e.g. wireless, satellite, cannot begin to compete with fiber in terms of transmission characteristics or in terms of cost for capacity gained. Thus, hopes for a competitive telecommunications marketplace cannot be based on a model of competing media and/or technologies.

If there is to be competition, ILEC networks must be open. Fortunately, this is also the best way to facilitate the development and implementation of content for all users of ILEC networks – ILECs, CLECs and end-users -- and to assure that the telecommunications business continues to be a non-zero-sum game. Mpower’s proposed “FLEX Contracts” could also provide a powerful stimulus to encourage the use of network capacity. Openness of ILEC networks to CLECs and their customers will provide a win-win-win solution for ILECs, CLECs and consumers. Further, this is not an untested plan. It has been implemented effectively in Australia by Telstra.

Because of network changes, new end-to-end fiber-based UNEs will be required in the future. These might be similar to the Commission’s “unified” loop concept but if

so, all combinations of loop and equipment components must be taken into account. In the meantime, it is essential that today's "broadband" loops, such as T-1s, not be deregulated and that ILEC networks remain open to wholesalers and content providers.

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Mpower Communications Corp. ("Mpower") hereby submits its Comments on the issues raised by the Federal Communications Commission ("Commission" or "FCC") in its Notice of Proposed Rulemaking ("NPRM") in its Triennial Review of UNE Issues.¹

I. Introduction

In ¶ 20, the FCC states that:

[T]he Commission has generally set forth network element definitions and then made a determination as to whether requesting carriers were impaired without access to those elements. We seek comment on whether we should continue this approach, or whether we should first identify impairments to requesting carriers' ability to provide service, and then define network elements that specifically address such impairments.

¹ *In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, Docket No. 01-338, Rel. 12/20/01, ("*Triennial NPRM*").

In making this statement, the Commission appears to be grappling with how to solve one of the central problems underlying this NPRM. As the new fiber network gradually augments and replaces the older copper network, the new availability of broadband packet technology is producing a convergence of systems. Increasingly voice, as well as what is usually thought of as “data,” is transmitted in packets over fiber.

This means that it is increasingly difficult to predict what combinations of technology and facilities will be necessary to reach customers with competitive choices. Many of the unbundled network elements (“UNEs”) previously identified will undoubtedly continue to have importance during a transition period. Increasingly, however, competitive local exchange carriers (“CLECs”) will be unable to reach their customers if their signals cannot traverse an incumbent local exchange carrier’s (“ILECs”) integrated network of copper and fiber lines, packet switching and circuit switching, as well as digital loop carriers (“DLCs”). In other words, it will increasingly become necessary to identify “end-to-end” functional UNEs, that is, UNEs that combine the use of any technology or equipment between the CLEC and its customer. Without such integrated access,² CLECs will be unable to reach their customers.

It is also crucial to this vision of the future to understand that it generally is not and cannot be economical to replicate the “last mile” to the customer premises. Not only is such replication very expensive and time-consuming but it is unnecessary, disruptive and highly inefficient. While we do not know for certain what constraints may exist to the capacity of a single strand of fiber, in recent years that capacity has doubled

² ILECs should retain control over network deployment decisions but should consult with and provide full advance disclosure as well as full access to CLECs. Such an open, consultative system would avoid most, if not all, of the risks complained of by ILECs.

approximately every 18 months! Thus, a single strand of fiber can provide more capacity than most end-users are ever likely to need. Replication in the face of such overwhelming capacity cannot be efficient and economical. A rational network plan, therefore, requires that capacity be shared.

II. The Network of the Future

The network of the future is not a theoretical construct. While some of its parts have not been fully developed or implemented, its construction has been underway for many years and its outlines and components are clear. Like the federal, interstate highway system, some less populous areas may still be served by old, two lane roads. Nevertheless, the nature of the system and the pattern of development have clearly identifiable characteristics.

Today, most ILECs are deploying large amounts of fiber in their outside plant, focusing primarily on the network segment between their Central Offices (“CO”) and the first major aggregation point in the old copper system, where today there is often a digital loop carrier (“DLC”) system. While the installation of an all-fiber network would be extremely costly, this increasingly appears to be the best means to provide enormous amounts of bandwidth at the least possible cost.

While there are a variety of possible alternative broadband transmission media, such as hybrid fiber/coax, satellite, fixed wireless, etc., at this time, it seems unlikely that any of the alternative possibilities will even begin to approach the cost-for-value ratio of an installed fiber network. More specifically, it is hard to compete with a fiber-based service with minimal transmission delays, derived from speed-of-light facilities, offering affordable gigabit-per-second rates.

Some carriers have already deployed all-fiber network trials in preparation for the development of an all-fiber network.³ Others have stated on the record that they intend to begin deploying all fiber networks in the near future.⁴ As reported in the

Telecommunications Reports of 3/11/2002:

Research for the *Local Exchange Network in 2015* study was sponsored by the Telecommunications Technology Forecasting Group [TFI], which is comprised of Bell Canada, BellSouth Corp., Qwest Communications International, Inc., SBC Corp., and Verizon Communications, Inc.

‘Unless things go badly wrong, ILECs will have largely completed the transition to a packet-switched, broadband, optical network by 2015,’ said TFI President Lawrence K. Vanston....

The study also predicts that fiber will dominate the outside plant and will comprise 100% of the interoffice network, 97% of the feeder network, and 95% of the distribution network. In addition, the study said that of ...network investment in place in 2001, well under 10% will still be in use in 2015.

Today, the Commission is at a crossroads. If it bases its hopes for a competitive telecommunications marketplace upon competition between providers using different media, it is likely to be disappointed. No existing media can begin to compete with fiber in terms of effective transmission characteristics and no existing media can begin to compete with fiber in terms of the cost for capacity gained.⁵ Further, at this time, there is no known maximum transmission capacity for fiber. Progressive changes to optical

³ For example, SBC’s Broadband Passive Optical Network (“BPON”) trial in Houston, TX and Mission Bay, CA, SBC press release, 5/9/01, and BellSouth’s Full Service Access Network (“FSAN”) trial in suburban Atlanta, BellSouth press release, 6/17/98.

⁴ Sprint recently testified that it intends to “replace its traditional circuit switched network with a packet switched network” in order to begin moving its voice traffic, as well as data traffic, by packet switching technology. Direct Testimony of Richard G. Pfeifer, VP, External Affairs, for Centel/Sprint, in Sprint’s 2002 Nevada rate case, Docket Nos. 01-9029/01-12047, p. 6.

⁵ See, e.g., *Telecommunications Reports*, “Equipment-Maker Group Calls Fiber to the Home ‘Inevitable,’” 2/18/02. “TR: How does fiber-to-the-home compare with cable TV coaxial cable or DSL technology for delivering high-speed services or programming? Keegan: In the end, it doesn’t really compare. Nothing compares to fiber-to-the-home because the capacity is almost limitless....” (Emphasis added.)

equipment have led to regular multi-fold increases in capacity and that process does not seem to be at an end.

Today's "last mile" fiber installation plans primarily serve two purposes: 1) to enhance the efficiency with which regular voice services can be delivered and 2) to expand the reach of broadband data services. This expansion of fiber network, however, also operates as preparation for the upcoming shift in how telecommunications systems will operate – beginning in the very near future. The packet technology that gave rise to the Internet is already being used to transmit voice.⁶ As noted above, over time, it is likely to become the prevalent technology not just for data services but also for voice services. The International Telecommunications Union calls this transformation to packetized networks "[a] fundamental paradigm shift...that has arguably brought about as dramatic a change in personal communications as the telephone did compared to the telegram."⁷

If the impair test is properly designed and implemented, such network improvements would be welcomed by CLECs. They will only welcome these changes, however, if they have full access to the modernized, integrated networks and are not stranded with only the old technology or with no network access at all. Regulation should not result in competitors trying to compete using outdated, "buggy whip" copper networks.

III. Importance of Open Networks

If there is to be competition in telecommunications services and specifically, intra-modal competition, ILEC networks must be open. First, as noted above, replication

⁶ To date, Mpower itself has provided service for more than 15,000 POTS lines at over 3,000 customer locations using packet voice technology via broadband loops.

of the “last mile” is uneconomic and inefficient so networks must be shared. Second, openness leads to more widespread development of content, e.g. “killer” applications, which feeds demand for telecommunications services. Third, openness allows CLECs to compete, thus preventing an inter-modal duopoly with cable. Fourth, without ready access to ILEC networks, CLECs will likely fail, competition will not succeed and re-regulation will be required.

The role of openness can be illustrated generally by a comparison of the approaches of some of the computer companies. Apple wanted to control deployment of both the hardware and the software for its systems and it developed a relatively closed network of suppliers. With controlled access comes control over content. Control over content fails to provide incentives to others to develop and implement content applications. Thus, the network of suppliers fails to expand dynamically.

Microsoft, on the other hand, developed a relatively open approach to its operating systems software that facilitated the development of content. Various content providers benefited, as did Microsoft itself. Microsoft’s network of suppliers was able to expand exponentially. With telecommunications systems, CLEC access to the ILEC networks will allow the CLECs to facilitate the development and implementation of applications for end-users of ILEC networks, thus, creating greater demand for both retail and wholesale bandwidth and increasing revenues for ILECs.

How does one encourage open access? Certainly the “impair” test can help to gauge the need for openness. To the extent the ability of companies to provide services

⁷ ITU report on IP Telephony, January 2001.

would be "materially diminished"⁸ by an inability to obtain access to wholesale network and/or services from the ILEC, the CLEC is impaired in its ability to compete. As Mpower noted above, the nature of UNEs will need to change to reflect a changing, converging network where the services to be provided, e.g. voice or data, are increasingly provided in the same manner regardless of network characteristics and equipment.

What is even more vital than the need for openness, however, is developing a desire for openness. Openness represents the future strength of the ILEC networks to attract versatile, competing companies and their wholesale business. These companies will help to fill the prodigious and rapidly expanding capacity of the ILEC networks.

This process could be encouraged by making available the FLEX contracts proposed by Mpower.⁹ The current regime, on the other hand, is almost unique in the realm of wholesale pricing. There is one price regarding of volume or term. Such a formula is almost guaranteed to foment disagreements.

With open access, competitive companies will initially compete to encourage and implement business-to-business applications – content that will expand the “pie” and continue to make the telecommunications business a non-zero-sum game. As experience is accrued with business applications, those applications will be modified and honed to meet the needs of residential customers. Residential rates often need to be re-balanced to assure that they cover costs but when this has been done, CLECs will expand their focus

⁸ *In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, Docket No. 96-98, Rel. 11/5/99, (“UNE Remand Order”), ¶ 51; *see also*, *Triennial NPRM*, ¶ 7.

⁹ Mpower filed its *Petition for Forbearance and Rulemaking* with the FCC, CC Doc. 01-117, on 5/25/01, outlining its request for approval of “FLEX Contracts.” ILECs and CLECs could negotiate “package deals,” which would not be subject to “pick and choose” but would be available for non-discriminatory “opt-in.”

to provide attractive residential applications, as well. Thus, openness will provide a win-win-win solution for ILECs, CLECs and consumers.

IV. Wholesale Pricing of Open Networks

There remains the contentious issue of pricing, that is, TELRIC pricing. Perhaps the greatest practical difficulty in the current application of TELRIC pricing is that it purports to be wholesale pricing for individual units of merchandise. Although it may be necessary to allow start-up companies to order and provision the exact quantities of UNEs needed, individual, item-by-item pricing is more analogous to retail pricing than to wholesale pricing. Wholesale arrangements typically have volume and term components and often represent a “package deal.” What seems to be missing from UNE pricing is a true wholesale or “bulk” pricing mechanism. Mpower urges the Commission to encourage additional, more creative pricing mechanisms to strengthen the wholesale relationship between CLECs and ILECs.

ILECs would have an incentive to make wholesale arrangements with CLECs if it were recognized that the parties can agree to minimum bulk orders, minimum dollar commitments and/or “take or pay” arrangements in exchange for speed of provisioning, quality of service commitments and the like. Mpower proposed that a “FLEX contract” mechanism be approved to encourage ILECs and CLECs to make such wholesale deals.

IV. Transition Toward a Market-Driven System

There currently are three main stages on the route to a competitive or market-driven system: 1) Mandated Access and mandated pricing for UNEs or “UNE-land,” 2) A Transitional Period; and if the transition is successful, 3) A non-mandated, market-driven system.

UNE-land is familiar to all. It features mandated UNEs, modifiable or removable through the “impair” test, and mandated TELRIC pricing. ILECs and CLECs have been in constant battle since the passage of the Telecommunications Act of 1996 (the “1996 Act”) over nearly every aspect and every nuance of each requirement in UNE-land. While these battles have produced a minimally functional system, neither the process nor the perspectives honed in UNE-land are very productive. At the same time, truly massive amounts of resources have been expended – and are still being expended – on the “regulatory war” over UNEs. Those resources would have been better spent on developing effective, efficient ways of doing business together, that is, in developing the wholesale procedures, products and services which will expand business for all providers, enhance the quality of life for all consumers and help to expand and enhance the economy.

This perspective was recently presented by the national, incumbent Australian telecommunications carrier, Telstra. Telstra voluntarily separated its business into retail and wholesale sectors. In the “Telstra Viewpoint,”¹⁰ a paper prepared by Rosemary Howard, CEO of TelstraClear, formerly Managing Director, Telstra Wholesale (“TW”), on the importance of commercializing wholesale on ILEC networks, Ms. Howard explained as follows:

- Competition is welcomed, it generates market efficiency, growth and consumer benefits.
- At the same time, communications today is a dynamic market with much innovation; not a zero sum game
- Competitors can help grow the market for all; they are especially good at taking risks to identify new demands
- Telstra has embraced the opportunity to be strategically placed to benefit from market growth

¹⁰ Columbia Institute for Tele-Information Conference, “Whither Telecommunications Sector Investment? Examining the Role of Wholesaling Access in Stimulating Investment,” Columbia University, 3/4/02.

- You are better off when customers and competitors use your network, than when they use you for nothing
- Wholesale is a low cost distribution channel
* * *
- [Telstra] has account teams seeking to sell as much as possible (some other models seem to want to sell as little as possible!)
- Less than 1/3 of TW's products are offered under regulatory mandates.
* * *
- 'We have also provided a range of wholesale xDSL services as well as Unconditioned Local Loop product to enable our Wholesale customers to grow the broadband market also.' [From Telstra's 2001 Annual Review]
* * *
- Where wholesale is not commercialized there is evidence of a market failure that harms competitors and consumers
* * *
- The lack of a commercially rational wholesale market would indicate clear failure to recognize the growth and innovation potential of a truly competitive market. (Emphasis added.)

Mpower suggests there are a number of incentives available to encourage ILECs to begin to commercialize their wholesale business with CLECs and interexchange carriers ("IXCs"). Ms. Howard notes several of them in her presentation: 1) it helps to fill network capacity; 2) it expands business for all, a non-zero sum game; 3) market efficiency is enhanced and companies and consumers all benefit; and 4) it helps to expand the broadband market, in particular.

Mpower notes that this approach would bring an end to the expensive UNE "wars;" it would encourage the development and implementation of new content applications; it would encourage investment in networks and in innovative products; and it would avoid the need for re-regulation due to market failures.

V. Impair Test

Increasingly, customer demand should be driving the competitive process rather than the impair test. In the interim, the impair test must protect competitive choice. As networks and technology continue to evolve, the impair test must become a more

“function-oriented” test, i.e. more results-oriented and more customer-oriented. Every customer, wherever located, should be assured a competitive choice. To accomplish this, CLECs must be able to get to their customers regardless of the nature of the network and regardless of the equipment used by the ILEC.

In the future, it will not be effective to mandate the availability of a copper loop, if most voice and data traffic travel over fiber. Likewise, it will not be very useful to mandate the availability of a copper loop from a DLC to a customer’s premises, if the signal cannot travel from a CLEC’s collocation at a CO to the DLC because of fiber in the line. It also would be untenable to de-regulate “broadband,” if this means that CLECs cannot order T-1s or EELs (enhanced extended links) or their equivalent. Without access to high-speed or “broadband” facilities, as well as copper for at least a transitional period, CLECs simply will not be able to provide service to their customers. CLECs will likely fail and competition will also.

The Commission asks if a “unified” loop¹¹ is needed and if so, whether it is necessary to explicitly incorporate the functionality of additional equipment such as switching or splitters. Alternatively, the Commission asks whether certain levels of bandwidth or quality of service, e.g. constant or variable bit rates, should be incorporated into the definition of loops. As noted, above, Mpower believes the focus should be on access to an “end-to-end” UNE loop that allows CLECs to reach their customers regardless of the technology and equipment used by the ILEC. Mpower also believes that it may be difficult to explicitly incorporate types of technology and equipment into the definition of a loop without having an impact on ILEC choices.

¹¹ *Triennial NPRM* at ¶ 49.

In the future, however, new fiber-based UNEs will be required. In a prior filing,¹² Mpower suggested how one might go about identifying the needed fiber-based UNEs and how they might be put into place in a rapid manner. Fundamentally, Mpower's descriptions identified various possible technologies and combinations of technologies which could be used between the CO and the DLC, or remote terminal ("RT"), and between the DLC and the customer premises. At bottom, the issue, however, is that whatever the technology and equipment, the network must be accessible to the CLEC.

That, of course, is also true today. Largely because of radical differences in the effectiveness and costs of access to broadband technologies at varying distances from the CO, CLECs have been forced to move in the direction of obtaining T-1s from the ILEC in order to provision broadband services in a reasonably ubiquitous manner.¹³ T-1s are part of the ILECs' current network configuration, these loops are not available from other sources and they are not affected by fiber construction. They are, nevertheless, defined as high-capacity loops and are consistently used for provisioning broadband services. Mpower believes that the Commission's conclusions in the UNE Remand Order¹⁴ regarding the role of high-capacity/broadband loops continue to be correct where the Commission said:

¹² Mpower Comments of 10/12/00, filed in, *In the Matters of Deployment of Wireline Services Offering Advanced Telecommunications Capability*, Docket Nos. 98-147 & 96-98, 8/10/00, ("Collocation Reconsideration NPRM").

¹³ *Telecommunications Reports*, "With Fiber on the Horizon, SBC Seeks New Approach to Policy," 2/11/02. See, for example, comments of SBC's Sr. V-P Network Services, Wayne Masters, on the "Project Pronto" effort to deploy advanced services over fiber, in order to provide ubiquitous services, "Obviously we felt that DSL was critical to our future. The biggest reason for moving forward on Pronto was real simple: We could only reach a certain percentage of our customers with DSL from our central office base. That left about 40%-45% of our customers outside of our reach. It was unacceptable to us that we would only offer service that addressed 55%-60% of our customers, particularly if you look at the demographics of a lot of our modern cities...where a lot of the growth is on the outskirts."

¹⁴ Docket 96-98, Rel. 11/5/99.

[A]ccess to these high-capacity lines is necessary for ubiquitous deployment of high-speed services, including high-speed Internet access. We therefore agree with competitive LECs that failing to assure access to high-capacity loops would impair their ability to provide the services that they seek to offer in broadband service markets.¹⁵

As the Commission has noted,¹⁶ however, because “broadband” is evolving, what is considered “broadband” today may soon be considered “narrowband,” as new technologies appear. Thus, it is crucial to be certain that CLECs continue to have sufficient access to ILEC networks to reach their customers -- regardless of the technology or equipment used by the ILEC. They must not be relegated to relying on network technology and/or equipment that exists at one given point in time.

VI. Conclusions

As the old copper network is gradually augmented and replaced by fiber, the new availability of broadband packet technology is producing a convergence of systems. Voice, as well as data, has already begun to be transmitted in packets over fiber. As a result of this convergence, it is increasingly difficult to predict what combinations of technology and facilities will be necessary to reach customers with competitive choices.

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¹⁵ *Id.* at ¶ 187.

¹⁶ *Triennial NRPM* at ¶ 22.

Because of these network changes, it is essential that ILEC networks remain open. New end-to-end fiber-based UNEs will be required in the future. In the meantime, it is essential that today's "broadband" loops, such as T-1s, not be de-regulated.

Respectfully submitted,

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